

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE		PAGE OF PAGES 12		
2. AMENDMENT/MODIFICATION NO. 0001		3. EFFECTIVE DATE 10 SEP 99		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable)	
6. ISSUED BY CODE		7. ADMINISTERED BY (If other than Item 6) CODE					
US ARMY ENGINEER DISTRICT, FORT WORTH ATTN: CESWF-CT (RM 2A19) PO BOX 17300 FORT WORTH, TX 76102-0300							
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)				9A. AMENDMENT OF SOLICITATION NO. DACA63-99-B-0069			
				9B. DATED (SEE ITEM 11) 17 AUGUST 1999			
				10A. MODIFICATION OF CONTRACTS/ORDER NO.			
				10B. DATED (SEE ITEM 13)			
CODE		FACILITY CODE					
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS							
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers tended. <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not ex-							
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required)							
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.							
<input checked="" type="checkbox"/> A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.							
<input type="checkbox"/> B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).							
<input type="checkbox"/> C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:							
<input type="checkbox"/> D. OTHER (Specify type of modification and authority)							
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) The Solicitation for REPLACE BUS BARN FACILITY, FORT BENNING, GEORGIA,, is amended as follows:							
See Continuation Sheet.							
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
(Signature of person authorized to sign)				BY (Signature of Contracting Officer)			
NSN 7540-01-152-8070 PREVIOUS EDITION UNUSABLE				30-105-02		STANDARD FORM 30 (REV. 10-83) Prescribed by GSA FAR (48 CFR) 53.243	
						USAPPCV1.00	

Item 14. Continued.

#### **CHANGE TO STANDARD FORM 1442**

1. Item 13.A. - Change the Bid Opening time and date from "2 p.m. local time, 16 September 1999" to "**2 p.m. local time, 20 September 1999.**"

#### **CHANGES TO THE SPECIFICATIONS**

2. New Sections - Add the following new section, bearing the notation "**AM #0001**" to the specifications:

SECTION 01560 TEMPORARY SAFETY CONTROLS

3. Replacement Sections - Replace the following sections with the accompanying new sections of the same number and title, bearing the notation "**AM #0001**:"

SECTION 01000 CONSTRUCTION SCHEDULE  
SECTION 01010 CONTRACT CONSIDERATIONS  
SECTION 01200 PROJECT MEETINGS  
SECTION 01700 CONTRACT CLOSEOUT  
SECTION 09510 ACOUSTICAL CEILINGS

4. Deleted Sections – Delete the following specification sections:

SECTION 02466 DRILLED FOUNDATION CAISSONS (PIERS)

A revised Table of Contents, bearing the notation "ACCOMPANYING AMENDMENT NO. 0001 TO SOLICITATION NO. DACA63-99-B-0069" is included with this amendment.

#### **CHANGES TO THE DRAWINGS**

5. Replacement Drawings.- Replace the drawings listed below with the attached new drawings(s) of the same number, bearing the notation "**AM #0001**:"

c1 1.cal Seq 4 C1 SITE PLAN AND DEMOLITION SITE PLAN  
a01 1.cal Seq 5 A1 FLOOR AND MEZZANINE PLANS, DETAILS  
a02 1.cal Seq 6 A2 ELEVATIONS AND WALL SECTIONS  
a03 1.cal Seq 7 A3 REFLECTED CEILING PLANS, SCHEDULES, INTERIOR ELEVATIONS  
s01 1.cal Seq 9 S1 FLOOR AND MEZZANINE PLANS, DETAILS  
s02 1.cal Seq 10 S2 DETAILS  
s03 1.cal Seq 11 S3 MISC TABLES

END OF AMENDMENT

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-- End of Project Table of Contents --

## SECTION 01000

## CONSTRUCTION SCHEDULE

05/1998

AM #0001

## PART 1 GENERAL

## 1.1 SCHEDULE

Commence, prosecute, and complete the work under this contract in accordance with the following schedule and Section 00800 SPECIAL CONTRACT REQUIREMENT clauses COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK and LIQUIDATED DAMAGES:

Item of Work	Commencement of Work (calendar days)	Completion of Work (calendar days)	Liquidated Damages per calendar day
(1) All Work	Within 10 days after receipt of Notice to Proceed	180	\$ 400.00

## 1.1.1 Testing of Heating and Air-Conditioning Systems

[AM #0001] The times stated for completion of this project include all required testing specified in appropriate specification sections of heating, air conditioning, and ventilation systems including HVAC Commissioning. Exceptions, boiler combustion efficiency test, boiler full load tests, or cooling tower performance tests, and refrigeration equipment full load tests, as specified in the applicable specifications, shall be performed in the appropriate heating/cooling season as determined by the Contracting Officer.

## 1.2 UTILITIES

## 1.2.1 Payment for Utility Services

See Section 00800 SPECIAL CONTRACT REQUIREMENTS.

## 1.2.2 Outages

The Contractor shall coordinate all requests for utility outages with the Contracting Officer in writing 14 days prior to date of requested outage:

a. Water, gas, steam, and sewer outages shall be held to a maximum duration of 4 hours unless otherwise approved in writing.

b. Electrical outages shall have a maximum duration of 4 hours.

## PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

## SECTION 01010

CONTRACT CONSIDERATIONS  
AM #0001

## PART 1 GENERAL

## 1.1 CONTRACTOR ACCESS AND USE OF THE PREMISES

## 1.1.1 Commencement of Work

The Contractor should duly note that commencement of work as indicated in section 01000 CONSTRUCTION SCHEDULE does not necessarily indicate that the facility will be available for normal construction operations. Reference the remainder of these specifications for phasing, additional contract time, and availability of work criteria.

## 1.1.2 Station and Activity Regulations

Ensure that Contractor personnel employed on the Station become familiar with and obey Station and Activity regulations. Keep within the limits of the work areas and avenues of ingress and egress. Do not enter restricted areas unless required to do so and until cleared for such entry. The Contractor's equipment shall be clearly marked for identification.

## 1.1.3 Working Hours

1.1.3.1 Access Allowed

[AM #0001] In facilities where Contractor will be permitted access to selected area inside the occupied facility, regular working hours shall consist of an 8.5 hour period between 7:00 am and 4:30 pm, Monday through Friday, excluding Government holidays unless otherwise specified herein.

1.1.3.2 No Access Allowed

In facilities where Contractor will not be allowed access inside the occupied facility, regular working hours shall consist of an 8.0 hour period between 3:30 pm and 12:00 am, Monday through Friday, excluding Government holidays unless otherwise specified herein.

## 1.1.4 Work Outside Regular Hours

Work performed during hours outside of regular hours is subject to Contracting Officer approval. Contractor shall make application 7 calendar days prior to such work to facilitate arrangements to be made by the Government for inspecting work in progress. Application shall give the specific dates, hours, locations, type of work to be performed, contract number and project title.

## 1.1.5 Utility Cutovers

Contractor shall make effort to exact any required utility cutovers outside of regular working hours to minimize any impact in occupied facilities.

## 1.2 SPECIAL REQUIREMENTS FOR OCCUPIED BUILDINGS

The work under this contract requires special attention to the scheduling and conduct of the work in connection with existing building operations.

#### 1.2.1 Interruptions

Contractor shall identify on the construction schedule any activity or factor with potential to create interruption to the normal operation of the building.

#### 1.2.2 Life Safety and Egress

During any time the building is occupied, all code requirements for life safety and building egress/evacuation must be maintained unless approved by the Authority Having Jurisdiction.

#### 1.2.3 Security

The existing buildings and their contents must be kept secure at all times. Contractor will provide and install temporary closures as required to maintain physical security of the building and contents as directed by the Contracting Officer.

#### 1.2.4 Noise

The Contractor shall be aware of and recognize the fact that when he is working in occupied building facilities, he should apply conscientious effort to minimize noise in areas where it could be detrimental to building operations (e.g. adjacent to occupied classrooms). If it is judged that normal contractor operations would create noise of a level that would be detrimental to these operations, that portion of the work should be performed outside the hours of building occupancy.

#### 1.2.5 Dust Covers

Contractor shall provide temporary dust covers or protective enclosures to protect any furnishings, equipment or materials that are not required to be relocated during construction in any area. Covers or enclosures shall also be provided to protect existing construction that is to remain. Upon removal of covers, all surfaces shall be vacuumed and dusted, including removal of dust and debris located within space prior to placing temporary dust coverings.

#### 1.2.6 Furnishings and Equipment

In areas where furniture or equipment relocation that will not be performed by the user is required to perform the required work, Contractor shall relocate movable items away from the working area, protect the furniture or equipment, or replace items damaged. These areas shall be photographed or video taped prior to any items being moved. The areas that users will facilitate furniture relocation are identified elsewhere in these specifications. Items shall be relocated to their original position following the completion of the work. Leave attached items in place and protect them from damage, or temporarily disconnect, relocate, protect and reinstall them upon completion of the work. All items must be fully operational as certified by the appropriate authority upon completion of the work.

#### 1.2.7 Conduct and Dress

Workers shall be properly attired at all times. Full length pants (no shorts), shirts (tee-shirt minimum), and proper shoes (no thongs, flip-flops or open toed sandals) are required. These criteria do not release Contractor responsibility from more stringent safety and dress criteria, however. Logos, slogans or other adornment of clothing that could be considered to be offensive to minors are prohibited. No smoking will be permitted in the buildings. Smoking will be permitted only in designated outdoor areas. The contractor shall ensure that all lunch and breaktime debris are contained and removed from the project site at the end of each break or lunch period and disposed of properly. The contractor shall confine his personnel to the area within which the work is being performed. Profanity is strictly forbidden. The utmost courtesy shall be extended to the building occupants at all times. Conversation with occupants shall be limited to and pertain to the work at hand. All privately owned vehicles shall be parked in the contractor storage and staging area. Lights shall be turned off and doors and windows shall be locked after work in buildings following regular work hours.

#### 1.2.8 Use of Building Facilities and Equipment

No items in the facility are to be used by the Contractor's personnel. Brooms, vacuums, cleaning supplies, telephones, restrooms, cafeteria facilities, vending machines, etc. shall not be used by the Contractor's personnel.

#### 1.2.9 Restoration of Occupied Spaces

In the event that work has been performed in occupied spaces outside of regular work hours, the Contractor shall restore the space to its prior, occupiable and usable condition prior to conclusion of the days work. The space shall be available for use without restriction or interference the following day. All tools, supplies, materials, and equipment shall either be removed from the premises, or stored in such a manner as not to interfere with the facilities normal operations, subject to prior approval of the Contracting Officer. All dust and debris shall be removed from occupied spaces prior to the conclusion of work for the day.

### PART 2 PRODUCTS

NOT USED

### PART 3 EXECUTION

NOT USED

-- End of Section --

SECTION 01200  
PROJECT MEETINGS  
02/97  
AM #0001

PART 1 - GENERAL

1.1 PRECONSTRUCTION CONFERENCE

Approximately three weeks after award of the contract and prior to the start of any construction work an authorized representative of the Contracting Officer will schedule and conduct a preconstruction conference.

The Contractor's Project Manager, Superintendent and his Quality Control Manager will attend this meeting. The Contractor is encouraged to have an officer of his company and representation from his sub-contractors at this conference. This conference will be held at the location specified by the Contracting Officer's authorized representative.

1.1.1 Start of Construction Work

If the Contractor has submitted the Accident Prevention (Safety) Plan, Quality Control Plan, and Environmental Protection Plan for review prior to this meeting, these may be accepted in toto or accepted with comments at the conference. Construction work will not proceed until after this meeting has been held, these three plans noted above have been accepted and the Notice to Proceed has been received and acknowledged by the Contractor.

1.2 PROGRESS MEETINGS

[AM #0001] Upon mobilization and after the pre-construction meeting, weekly meetings shall be held at the site to review the status and progress of the work, coordinate availability of work areas and phasing, review building security, respond to any concerns and safety requirements of the using agency and any other pertinent information as determined by the Contracting Officer. The Contracting Officer will establish the day of the week and time for the Progress Meetings. The Contractor's Superintendent, Project Manager, and subcontractors currently engaged in the work or anticipated to start work the following week along with the using agency representative shall attend the progress meeting.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

-- End of Section --

## SECTION 01560

[AM #0001] TEMPORARY SAFETY CONTROLS**01/1998****AM #0001**

## PART 1 GENERAL

## 1.1 SUMMARY

This section covers safety requirements that are in addition to those specified in COE EM 385-1-1.

## 1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## U.S. ARMY CORPS OF ENGINEERS (COE)

COE EM 385-1-1

(Current Edition) Safety and Health  
Requirements Manual

## CODE OF REGULATIONS (CFR)

29 CFR 1910

Hazardous Waste Operation and Emergency  
Response

## 1.3 SAFETY MEASURES

## 1.3.1 OSHA Requirements

The Contractor shall comply with Occupational Safety and Health Act (OSHA) Standards. OSHA Standards are subject to change. It is the Contractor's responsibility to maintain familiarity with OSHA Standards which are current.

## 1.3.2 Confined Space Program

A confined space means a space that: (1) is large enough and so configured that an employee can bodily enter and perform assigned work; and (2) has limited or restricted means for entry or exit (for example tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry), and (3) is not designed for continuous employee occupancy. A permit-required confined space means a confined space that has one or more of the following characteristics: (1) contains or has a potential to contain a hazardous atmosphere, (2) contains a material that has the potential for engulfing an entrant; (3) has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or (4) contains any other recognized serious safety or health hazard.

## 1.3.2.1 Written Confined Space Program

The Contractor shall develop a written Confined Space Program in accordance with 29 CFR 1910.146 which shall include a measure of identification and classification of all confined spaces as either non-permit and permit required spaces. The following elements, as a minimum, shall be included along with any additional factors the contractor may identify:

a. Procedures to identify confined spaces and determine if a permit is required.

b. Identification of the individual(2) responsible for administering the Contractor's Confined Space Program. This shall include the name and qualification of the persons and their specific role and responsibility in administering this program: i.e., person(s) who will issue permits, conduct atmospheric testing, identification of entry supervisors, authorized entrants, and attendants, etc.

c. Identification of monitoring equipment to be used for atmospheric testing; i.e., oxygen content, combustible, and toxics; of the confined space prior to entry and during work. This shall include type of equipment, the approval for use in hazardous environments and calibration requirements.

d. Development of an air monitoring plan for the confined space which identifies the specific type of monitoring to be conducted, when, how often, and by whom conducted. A log shall be developed and maintained for documentation of the following data: date, time, equipment used, type of air monitoring, date and time of equipment calibration, and person conducting the air monitoring.

e. Detailed description of the confined space permit system including a copy of a permit, instructions for completion and issuance of the permit, and the person responsible for the permits.

f. Training requirements and documentation of the training as required for supervisor, entrants, attendants and stand-by personnel.

g. Procedures to ensure a safe entry at all times into the confined space including those which address entry prior to the permit determination.

h. Documentation of the elimination of the hazards prior to entry.

i. Communication procedures, to include working in high-noise and/or toxic environments, shall be established to ensure effective employee communication at all times with minimal interference from wearing of PPE or high noise levels.

j. Procedure for limiting unauthorized access to the space.

k. Emergency procedures to include emergency entry, escape and rescue procedures, communication, and any personnel protective equipment necessary.

l. Description of emergency rescue procedures including simulated drills, personnel protective equipment necessary, and the retrieval system to be used.

m. Description of the ventilation system to be used for confined space work to ensure adequate ventilation. This shall include a description of the design, the measure of determining efficiency and the

proper installation of the ventilation system.

n. Measure of dust suppression to be used to minimize the potential toxic atmosphere.

o. Description of methods used to inspect personnel protective equipment prior to use in the confined space.

p. Description of the method of inspection to ensure conditions within the confined space have not changed since the onset of work and the person responsible for these inspections.

### 1.3.3 Electrical Work

Electrical work will not be performed on or near energized lines or equipment unless specified in the plans and specifications.

#### 1.3.3.1 De-Energizing Lines And Equipment

Upon request by the Contractor, arrangements will be made for de-energizing lines and equipment so that work may be performed. All outages shall be requested through the authorized representative of the Contracting Officer a minimum of 21 days, unless otherwise specified, prior to the beginning of the requested outages. Dates and duration will be specified.

#### 1.3.3.2 Work Performed On Energized Lines

Upon approval of the Contracting Officer's representative, the following work may be performed with the lines energized using certified hot line equipment, on lines above 600 volts, when the following conditions have been met:

- a. Work below the conductors no closer than the clearance required in COE EM 385-1-1 from the energized conductors.
- b. Setting and connection of new pretrimmed poles in energized lines which do not replace an existing pole.
- c. Setting and removing transformers or other equipment on poles.
- d. Installation or removal of hot line connectors, jumpers, dead-end insulators for temporary isolation, etc., which are accomplished with hot line equipment from an insulated bucket truck.

#### 1.3.3.3 Work Plan for Energized Lines

The Contractor shall submit a plan, in writing, describing his method of operation and the equipment to be used on energized lines. Proper certification from an approved source of the safe condition of all tools and equipment will be provided with the plan. The work will be planned and scheduled so that proper supervision is maintained. The Contractor will review his plan with the Contracting Officer's representative prior to being granted permission to perform the work.

#### 1.3.3.4 Lines Greater Than 600 Volts

No work on lines greater than 600 volts will be performed from the pole or without the use of an insulated bucket truck.

#### 1.3.3.5 Overbuilt Lines

No work will be done on overbuilt lines while underbuilt lines are energized, except for temporary isolation and switching in accordance with subparagraph "Work Performed On Energized Lines" hereinbefore.

#### 1.3.4 Rollover Protective Structures (ROPS)

##### 1.3.4.1 Rollers and Compactors

R OPS for rollers and compactors will be certified to meet SAE requirement J1040C.

##### 1.3.4.2 Pulverizers

ROPS, as required by paragraph 16.B.12, COE EM 385-1-1, includes self-propelled pulverizers.

#### 1.3.5 Radiation Permits or Authorizations

Contractors contemplating the use of radioactive materials or radiation producing equipment while performing work on this contract must obtain written authorization from the Department of the Army or Department of the Air Force, as applicable.

a. A 45-day lead time should be programmed for obtaining this written authorization.

b. When requested, the Contracting Officer's Authorized Representative will assist Contractor in obtaining the required permit or authorization.

#### 1.3.6 Self-Propelled Elevating Work Platforms

All self-propelled elevating work platforms will be designed, constructed, maintained, used, and operated in accordance with the guidance provided in American National Standard for Self-Propelled Elevating Work Platforms (ANSI A92.6-1979) together with any amendments which may be in force at time contract is awarded.

#### 1.3.7 Supporting Systems

To COE EM 385-1-1, 23.D.01, add "Supporting systems, i.e., piling, cribbing, shoring, etc., shall be designed by a qualified person to meet accepted engineering requirements. Submit supporting systems construction details and design calculations, which bear the seal of a licensed professional engineer, for Contracting Officer review."

#### 1.3.8 Telephone

A telephone or equivalent means to immediately initiate emergency response services shall be accessible at the job site at all times while work is underway.

#### 1.3.9 Language

For each work group that has employees who do not speak English, the Contractor will provide a bilingual foreman who is fluent in English and in the language of the workers. The Contractor will implement the requirements of COE EM 385-1-1, paragraphs 01.B.01, 01.B.02, and 01.C.02

through these foremen.

#### 1.3.10 Doctor's Report

The Contractor shall provide, in the event of any Contractor/subcontractor employee lost time injury accident, a doctor's report of examination which states the number of days that the physician recommends the employee recuperate before returning for work. This requirement shall be in addition to other reporting requirements and may, in specific instances, be waived by the Contracting Officer.

#### 1.3.11 Fall Protection

A passive means of fall protection, such as guardrails or catch platforms, will be used on all roofs or wherever the fall distance exceeds 6 feet, in accordance with the requirements of Contract Clause "Accident Prevention" and the safety manual, COE EM 385-1-1.

### 1.4 CONSTRUCTION/ERECTION SUPPORTS AND LOADS

#### 1.4.1 Lateral Stability

The lateral stability of this structure is dependent on the total completion of all interconnected structural roof, wall, and floor framing/decking systems. The Contractor shall provide and adequately install and maintain all temporary supports such as temporary guys, lateral bracing, falsework, cribbing, and any other type structural supports required for a safe erection operation to maintain stability of the structure until all structural systems are interconnected as required by the contract plans and specifications.

#### 1.4.2 Temporary Support Data

At least 60 days prior to the start of vertical construction and prior to the commencement of structural steel, concrete or masonry walls, elevated floors, and roofs, the Contractor shall submit detailed drawings, catalog data and calculations for all temporary supports as described in paragraph above, which will be used on this contract. These detailed drawings, catalog data, and calculations shall be prepared and certified by a Registered Structural Engineer. The minimum for vertical loads shall be actual dead loads plus a minimum live load of 25 psf, but use higher live loads if needed due to the Contractor's plan of erection. No load reductions will be allowed. Bracing shall be designed for a minimum wind load of 20 psf. Wind loadings will not be reduced from the design wind load provided and all temporary supports will be designed with a minimum safety factor of 1.5.

#### 1.4.3 Installation And Maintenance

After approval of the temporary support system and calculations, the Contractor shall install and maintain the temporary structural support system in strict compliance with the approved drawings. Daily inspections will be conducted by the Contractor's Quality Control Inspector to assure all supports are installed as approved and properly maintained.

#### 1.4.4 Architectural Or Structural Precast Or Tilt-Up Wall Panels

Temporary supports for architectural or structural precast or tilt-up wall panels will be designed as indicated above. Pipe or other approved bracing

shall have lateral cross bracing between each pipe support. Tension guy wires or cables will not be acceptable. Bolted or welded connections into the concrete floors and concrete wall panels will be designed with a safety factor of 3.0. Immediately after erecting each concrete wall panel, the bottom of the panel shall be secured by welding the weld plates or by bolting in place. Panels will not be temporarily placed in a vertical position until they are ready to be erected in their final position. If possible, all structural steel will be erected prior to erection of wall panels. If not, the structural steel will be commenced immediately after the last wall panel is set in the smallest section/bay possible. The Contractor shall not start a new wall section/bay until the structural steel is completed in the last section/bay.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

## SECTION 01700

## CONTRACT CLOSEOUT

01/1997

AM #0001

## PART 1 GENERAL

## 1.1 PAYMENT

Contract closeout activities such as, but not limited to, operation and maintenance manuals, record drawings, warranty requirements, equipment warranty identification tags, and inventories, payrolls, and shop drawing submittals, are subsidiary activities of the contract work; separate payment will not be made for any activity unless otherwise specified. Final contract payment will not be made until completion and approval of all contract closeout activities.

[AM #0001] "Testing of Heating and Air Conditioning Systems" of Section 01000 has a value to the Government of 10% of the value of the equipment to be tested. The contractor will assign that amount to any equipment that will require testing after substantial completion pursuant to the above referenced specification paragraph.

## 1.2 OPERATION AND MAINTENANCE MANUALS

The Contractor shall be responsible for the preparation, coordination, execution and submittal of all operation and maintenance manuals (O & M Manuals), including spare parts lists, special tools, inventories of equipment manuals and maintenance instructions, and shall conduct all training for operating and service personnel. Operation and maintenance manuals shall cover all system installations provided in this contract and shall be in sufficient detail to facilitate normal maintenance and troubleshooting by persons with minimum experience with the installed equipment.

## 1.2.1 Submittal Requirements

All of the above listed items required in the technical specifications shall be submitted to the Contracting Officer not less than 90 days prior to the scheduled contract completion date. Fully developed and approved operation and maintenance manuals shall be provided 30 days prior to scheduling training for operating and service personnel. The Contractor shall coordinate the content of each instruction period required in the technical specifications with the Contracting Officer's Representative prior to the actual start of the training period.

## 1.2.1.1 Video taping of Training for Operating and Service Personnel

Each instruction or training period as discussed above, shall be video taped in VHS FORMAT by the Contractor. The taping shall include the entire session(s). The original video tape(s) shall be labeled and turned over to the Contracting Officer. The video camera and tapes utilized by the Contractor, shall be of a quality to enable clear and understandable playbacks of the recorded events.

## 1.2.1.2 Draft O &amp; M Manuals

On those systems where complete and comprehensive operation and maintenance manuals cannot be fully developed until the system(s) is checked, tested, and/or balanced, and the checking, testing, and/or balancing has not been done when submittals are required, a proposed draft of those system manual(s) shall be submitted. 10 percent of the each subsequent scheduled progress payment will be retained until the complete O & M Manuals submittal package have been submitted and approved. Submit fully developed O & M Manuals of the drafts for approval after the systems have been checked, tested, and/or balanced.

#### 1.2.1.3 Commencement of Warranty of Construction

Failure to submit all specified O & M manuals, spare parts listings, spare parts, special tools, inventories of installed property, and training video tapes in a timely manner will be considered as delaying substantial completion of the work. Commencement of warranty under the Contract Clause WARRANTY OF CONSTRUCTION will not occur until all these items are delivered and approved by the Contracting Officer, but not earlier than the date of final acceptance of the work by the Government. When the O & M Manuals with drafts are approved they will not constitute a reason for delaying the start of the warranty period.

#### 1.2.2 Government Possession of Work

The Government may take possession of any completed or partially completed work as provided for under Contract Clause entitled "USE AND POSSESSION PRIOR TO COMPLETION." If the installed equipment and/or systems thereto, have not been accepted by the Government due to the Contractor's failure to submit the above specified items, the Contractor shall operate and maintain such plant or system at no additional cost to the Government until such time that the specified items have been received, approved and any subsequent testing, check-out and/or training has been completed.

### 1.3 PREPARATION AND SUBMISSION OF OPERATION AND MAINTENANCE MANUALS

This paragraph establishes general requirements for the preparation and submission of equipment operating, maintenance, and repair manuals as called for in the various sections of the specifications. Specific instruction(s) relating to a particular system or piece of equipment shall be incorporated into the manuals in accordance with the applicable technical specification.

#### 1.3.1 General Requirements

##### 1.3.1.1 Hard Cover Binders

The manuals shall be permanently bound and have a hard cover. The following identification shall be inscribed on the cover: the words "EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUAL:" and the name, building number, location, and indication of utility or systems covered. Manuals shall be approximately 8-1/2 by 11 inches with large sheets folded in and capable of being easily pulled out for reference. All manuals for a single facility must be similar in appearance.

##### 1.3.1.2 Warning Page

A warning page shall be provided to warn of potential dangers (if they exist), such as high voltage, toxic chemicals, flammable liquids, explosive materials, carcinogens, or high pressures. The warning page shall be

placed inside the front cover, in front of the title page.

#### 1.3.1.3 Title Page

The title page shall show the name of the preparing firm (designer or contractor) and the date of publication.

#### 1.3.1.4 Table of Contents

Provide in accordance with standard commercial practice.

### 1.3.2 Equipment Operating, Maintenance, and Repair Manuals

#### 1.3.2.1 General

Separate manuals shall be provided for each utility system as defined hereinafter. Manuals shall be provided in the number of copies specified in the applicable technical section. Manuals shall include, in separate sections, the following information for each item of equipment:

a. Performance sheets and graphs showing capacity data, efficiencies, electrical characteristics, pressure drops, and flow rates. Marked-up catalogs or catalog pages do not satisfy this requirement. Performance information shall be presented as concisely as possible and contain only data pertaining to equipment actually installed.

b. Catalog cuts showing application information.

c. Installation information showing minimum acceptable requirements.

d. Operation and maintenance requirements. Include adequate illustrative material to identify and locate operating controls, indicating devices and locations of areas or items requiring maintenance.

(1) Describe, in detail, starting and stopping procedures for components, adjustments required to obtain optimum equipment performance, and corrective actions for malfunctions.

(2) Maintenance instructions describing the nature and frequency of routine maintenance and procedures to be followed. Indicate any special tools, materials, and test equipment that may be required.

e. Repair information including diagrams and schematics, guidance for diagnosing problems, and detailed instructions for making repairs. Provide troubleshooting information that includes a statement of the indication or symptom of trouble and the sequential instructions necessary. Include test hookups to determine the cause, special tools and test equipment, and methods for returning the equipment to operating conditions. Information may be in chart form or in tabular format with appropriate headings.

f. Parts lists and names and addresses of closest parts supply agencies.

g. Names and addresses of local manufacturers representatives.

#### 1.3.2.2 Facility Heating Systems

Information shall be provided on the following equipment: Boilers, water treatment, chemical feed pumps and tanks, converters, heat exchangers,

pumps, unit heaters, fin-tube radiation, air handling units (both heating only and heating and cooling), and valves (associated with heating systems).

#### 1.3.2.3 Air-Conditioning Systems

Provide information on chillers, packaged air-conditioning equipment, towers, water treatment, chemical feed pumps and tanks, air-cooled condensers, pumps, compressors, air handling units, and valves (associated with air-conditioning systems).

#### 1.3.2.4 Temperature Control and HVAC Distribution Systems

a. Provide the information described for the following equipment:

Valves, fans, air handling units, pumps, boilers, converters, and heat exchangers, chillers, water cooled condensers, cooling towers, and fin-tube radiation.

b. Provide all information described for the following equipment:

Control air compressors, control components (sensors, controllers, adapters, and actuators), and flow measuring equipment.

#### 1.3.2.5 Central Heating Plants

Provide the information described for the following equipment: Boilers, converters, heat exchangers, pumps, fans, steam traps, pollution control equipment, chemical feed equipment, control systems, fuel handling equipment, de-aerators, tanks (flash, expansion, return water, etc.), water softeners, and valves.

#### 1.3.2.6 District Heating Distribution Systems

Provide the information described for the following equipment: Valves, fans, pumps, converters and heat exchangers, steam traps, tanks (expansion, flash, etc.) and piping systems.

#### 1.3.2.7 Exterior Electrical Systems

Information shall be provided on the following equipment: Power transformers, relays, reclosers, breakers, and capacitor bank controls.

#### 1.3.2.8 Interior Electrical Systems

Information shall be provided on the following equipment: Relays, motor control centers, switchgear, solid state circuit breakers, motor controller, and EPS lighting systems, control systems (wire diagrams and troubleshooting flow chart), and special grounding systems.

#### 1.3.2.9 Energy Management and Control System

The maintenance manual shall include descriptions of maintenance for all equipment, including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.

#### 1.3.2.10 Domestic Water Systems

The identified information shall be provided on the following equipment: Tanks, unit process equipment, pumps, motors, control and monitoring

instrumentation, laboratory test equipment, chemical feeders, valves, switching gear, and automatic controls.

#### 1.3.2.11 Wastewater Treatment Systems

The identified information shall be provided on the following equipment: Tanks, unit process equipment, pumps, motors, control and monitoring instrumentation, laboratory test equipment, chemical feeders, valves, scrapers, skimmers, comminutors, blowers, switching gear, and automatic controls.

#### 1.3.2.12 Fire Protection Systems

Information shall be provided on the following equipment: Alarm valves, manual valves, regulators, foam and gas storage tanks, piping materials, sprinkler heads, nozzles, pumps, and pump drivers.

#### 1.3.2.13 Fire Detection Systems

The maintenance manual shall include description of maintenance for all equipment, including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

#### 1.3.2.14 Plumbing Systems

Information shall be provided on the following equipment: Water heaters, valves, pressure regulators, backflow preventors, piping materials, and plumbing fixtures.

#### 1.3.2.15 Liquid Fuels Systems

Information shall be provided on the following equipment: Tanks, automatic valves, manual valves, filter separators, pumps, mechanical loading arms, nozzles, meters, electronic controls, electrical switch gear, and fluidic controls.

#### 1.3.2.16 Cathodic Protection Systems

Information shall be provided on the following material and equipment: Rectifiers, meters, anodes, anode backfill, anode lead wire, insulation material and wire size, automatic controls (if any), rheostats, switches, fuses and circuit breakers, type and size of rectifying elements, type of oil in oil-immersed rectifiers, and rating of shunts.

#### 1.3.2.17 Generator Installations

Information shall be provided on the following equipment: Generator sets, automatic transfer panels, governors, exciters, regulators, starting systems, switchgear, and protective devices.

#### 1.3.2.18 Miscellaneous Systems

Information shall be provided on the following: Communication and ADP systems, security and intrusion alarm, elevators, material handling, active solar, photovoltaic, and other similar type special systems not otherwise specified.

### 1.4 RECORD DRAWINGS

Record drawings shall be a record of the construction as installed and completed by the Contractor. They include all the information shown on the contract set of drawings and a record of all deviations, modifications, or changes from those drawings, however minor, which were incorporated in the work; all additional work not appearing on the contract drawings; and all changes which are made after final inspection of the contract work and the location and size of all uncharted existing utilities encountered. In event the Contractor accomplishes additional work which changes the as-built conditions of the facility after submission of the record drawings, the Contractor shall furnish revised and/or additional drawings, hard copy and CADD files, as required to depict as-built conditions. The requirements for these additional drawings will be the same as for the record drawings included in the original submission. CADD files shall conform to the CADD requirements of the Contracting Officer and shall be demonstrated to work on the designated Government computer systems. CADD files shall be error- and virus-free.

#### 1.4.1 Submittals of Preliminary and Final Record Drawings

##### 1.4.1.1 Contracts Having Multiple Items of Work

A copy of the preliminary record drawings which the Contractor has reproduced from the approved preliminary record drawing sepias, shall be furnished to the Contracting Officer's representative at the time of the final inspection on each interim item of work.

##### 1.4.1.2 Contracts Having a Single Item of Work and the Chronologically Last Item of Work on Contracts Having Multiple Items of Work

At the time of final inspection on the last or only item of work, the Contractor shall deliver a copy of the approved preliminary record drawing sepias and blue lines to the Contracting Officer's Representative.

##### 1.4.1.3 All Contracts, Final Record Drawings

Final record drawing submittal requirements are as stated later in this specification.

#### 1.4.2 Preliminary Record Drawings

The Contractor shall mark up both a sepia set and a blue line set of prints to show as-built conditions. These two sets, hereafter called preliminary record drawings, or singly, sepias or blue lines, shall be kept current and available on the jobsite at all times, except as noted below. A member of the Contractor's Quality Control Organization shall be assigned responsibility for the maintenance and currency of the preliminary record drawings. This assignment and any reassignment of duties concerning the maintenance of the record drawings shall be promptly reported to the Contracting Officer's representative for approval. All changes from the contract drawings which are made in the work or additional information which might be uncovered in the course of construction, including uncharted utilities, shall be accurately and neatly recorded as they occur by means of details and notes. All changes and/or required additions to the preliminary record drawings shall be clearly identified in a color contrasting to blue and which is compatible with reproduction of the preliminary record drawing sepias. During periods when the sepias are being copied and are therefore not available at the jobsite, the Contractor shall continue posting all required data to the blue lines. The Contractor shall minimize the time that the sepias are away from the jobsite and he

shall update them with all as-built data immediately upon their return. The sepia and blue lines will be jointly inspected for accuracy and completeness by the Contracting Officer's representative and the assigned representative of the Contractor's Quality Control Organization prior to submission of each monthly pay estimate. (See paragraph, "Withholding for Preliminary Record Drawings.") The record drawings shall show the following information, but not be limited thereto:

a. The location and description of any utility lines or other installation of any kind or description known to or found to exist within the construction area. The location of exterior utilities includes actual measured horizontal distances from utilities to permanent facilities/features. These measurements shall be within an accuracy range of mm6 inches and shall be shown at sufficient points to permit easy location of utilities for future maintenance purposes. Measurements shall be shown for all change of direction points and all surface or underground components such as valves, manholes, drop inlets, cleanouts, meter, etc. The general depth range of each underground utility line shall be shown (i.e., 3 to 4 feet in depth). The description of exterior utilities includes the actual quantity, size, and material of utility lines.

b. The location and dimensions of any changes within the building or structure.

c. Correct grade or alinement of roads, structures or utilities if any changes were made from contract drawings.

d. Correct elevations if changes were made in site grading.

e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

f. The topography and grades of all drainage installed or affected as a part of the project construction.

g. Options

Where contract drawings or specifications allow options, only the option selected for construction shall be shown on the record drawings.

#### 1.4.2.1 Blue Line or Black Line Prints

Blue line or black line prints shall be full size, 28" by 40" image on 30" by 42" sheet. All blue or black line prints shall exhibit good readable print with clear, sharp, dark lines, and shall not be smeared, faded, double imaged, or have torn or ragged edges.

#### 1.4.2.2 Prefinal Inspection For Each Item of Work

As part of the prefinal inspection for each item of work, the preliminary record drawings will be reviewed. They shall comply with this specification prior to scheduling the final inspection, and/or prior to substantial completion of the item of work.

#### 1.4.2.3 Preliminary Record Drawing Final Submittal

Prior to scheduling the final acceptance inspection of the last or only bid schedule item of work, the preliminary record drawings shall be completed and delivered to the Contracting Officer's Representative for review and approval. If upon review, the drawings are found to contain errors and/or omissions, they will be returned to the Contractor for corrections. Failure of the Contractor to make timely delivery of the preliminary record drawings on any or all items of work will be cause for the Government to delay substantial completion and to assess liquidated damages in accordance with the terms and conditions of the contract.

#### 1.4.2.4 Withholding for Preliminary Record Drawings

Failure by the Contractor to maintain current and satisfactory preliminary record drawings in accordance with these requirements will result in withholding from progress payments 10 percent of the progress payment amount. This unearned amount will be indicated on monthly payment estimates until the Contractor has fulfilled these contract requirements.

#### 1.4.5 Final Record Drawings

Upon approval of the preliminary record drawings, the Contractor shall prepare one additional set, marked in the same color(s) as the preliminary sets, and submit these three sets (at least one shall be a reproducible) of final, corrected record drawings to the Contracting Officer. Include CADD files for Contractor-original preliminary record drawings that were drawn using CADD such as subcontractor submittals (e.g. fire protection) and approved Contractor's solutions to problems. CADD files shall conform to the CADD requirements of the Contracting Officer, have been demonstrated to work on the designated Government computer systems, and be error- and virus-free. Upon approval and acceptance of final record drawing sets, the Contracting Officer will distribute the 3 copies as follows:

- a. one reproducible copy will be furnished to the customer within 30 days of completion of construction;
- b. one copy will be retained by the Corps of Engineers' field office; and
- c. one copy will be forwarded to the designer for use in updating the CADD files.

#### 1.5 ADDITIONAL WARRANTY REQUIREMENTS

The warranty requirements specified in this paragraph are in addition to those specified in the Contract Clause WARRANTY OF CONSTRUCTION in Section 00700 CONTRACT CLAUSES.

##### 1.5.1 Performance Bond

It is understood that the Contractor's Performance Bond will remain effective throughout the life of all warranties and warranty extensions. This paragraph is applicable to the Contractor's Warranty of Construction only and does not apply to manufacturers' warranties on equipment, roofing, and other products.

(a) In the event the Contractor or the Contractor's designated representative fails to commence and diligently pursue any work required under the Warranty of Construction Paragraph within a reasonable time after receipt of written notification pursuant to the requirements thereof, the

Contracting Officer shall have a right to demand that said work be performed under the Performance Bond by making written notice on the surety. If the surety fails or refuses to perform the obligation it assumed under the Performance Bond, the Contracting Officer shall have the work performed by others, and after completion of the work, shall make demand for reimbursement of any or all expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

(b) Warranty repair work which arises to threaten the health or safety of personnel, the physical safety of property or equipment, or which impairs operations, habitability of living spaces, etc., will be handled by the Contractor on an immediate basis as directed verbally by the Contracting Officer or the Contracting Officer's authorized representative.

Written verification will follow verbal instructions. Failure of the Contractor to respond as verbally directed will be cause for the Contracting Officer or the Contracting Officer's authorized representative to have the warranty repair work performed by others and to proceed against the Contractor as outlined in the paragraph (a) above.

#### 1.5.2 Pre-Warranty Conference

Prior to contract completion and at a time designated by the Contracting Officer or Contracting Officer's authorized representative, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of Contract Clause WARRANTY OF CONSTRUCTION. Communication procedures for Contractor notification of warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer or Contracting Officer's authorized representative for the execution of the construction warranty shall be established/reviewed at this meeting.

In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor will furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue warranty work action on behalf of the Contractor. This single point of contact will be located within the local service area of the warrantied construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of Contractor's responsibilities in connection with Contract Clause WARRANTY OF CONSTRUCTION.

#### 1.6 EQUIPMENT WARRANTY IDENTIFICATION TAGS

##### 1.6.1 General Requirements

The Contractor shall provide warranty identification tags on all Contractor and Government furnished equipment which he has installed.

##### 1.6.1.1 Tag Description and Installation

The tags shall be similar in format and size to the exhibits provided by this specification, they shall be suitable for interior and exterior locations, resistant to solvents, abrasion, and to fading caused by sunlight, precipitation, etc. These tags shall have a permanent pressure-sensitive adhesive back, and they shall be installed in a position that is easily (or most easily) noticeable. Contractor furnished equipment

that has differing warranties on its components will have each component tagged.

#### 1.6.1.2 Sample Tags

Sample tags shall be submitted to the Contracting Officer's Authorized Representative for review and approval. These tags shall be filled out representative of how the Contractor will complete all other tags.

#### 1.6.1.3 Tags for Warranted Equipment

The tag for this equipment shall be similar to the following. Exact format and size will be as approved by the Contracting Officer's Authorized Representative. The Contractor warranty expires (warranty expiration date) and the final manufacturer's warranty expiration dates will be determined as specified by the Paragraph "WARRANTY OF CONSTRUCTION."

EQUIPMENT WARRANTY CONTRACTOR FURNISHED EQUIPMENT	
MFG_____	MODEL NO._____
SERIAL NO._____	
CONTRACT NO._____	
CONTRACTOR NAME_____	
CONTRACTOR WARRANTY EXPIRES_____	
MFG WARRANTY(IES) EXPIRE_____	

EQUIPMENT WARRANTY GOVERNMENT FURNISHED EQUIPMENT	
MFG_____	MODEL NO._____
SERIAL NO._____	
CONTRACT NO._____	
DATE EQUIP PLACED IN SERVICE_____	
MFG WARRANTY(IES) EXPIRE_____	

#### 1.6.1.4 Duplicate Information

If the manufacturer's name (MFG), model number and serial number are on the manufacturer's equipment data plate and this data plate is easily found and fully legible, this information need not be duplicated on the equipment warranty tag.

#### 1.6.2 Execution

The Contractor will complete the required information on each tag and install these tags on the equipment by the time of and as a condition of

final acceptance of the equipment. The Contractor will schedule this activity in the Contractor progress reporting system. The final acceptance inspection is scheduled based upon notice from the Contractor, thus if the Contractor is at fault in this inspection being delayed, the Contractor will, at the Contractor's own expense, update the in-service and warranty expiration dates on these tags.

#### 1.6.3 Payment

The work outlined above is a subsidiary portion of the contract work, and has a value to the Government approximating 5% of the value of the Contractor furnished equipment. The Contractor will assign up to that amount, as approved by the Contracting Officer's Authorized Representative.

#### 1.6.4 Equipment Warranty Tag Replacement

Under the terms of this contract, the Contractor's warranty with respect to work repaired or replaced shall run for one year from the date of repair or replacement. Such activity shall include an updated warranty identification tag on the repaired or replaced equipment. The tag shall be furnished and installed by the Contractor, and shall be identical to the original tag, except that the Contractor's warranty expiration date will be one year from the date of acceptance of the repair or replacement.

#### 1.7 INVENTORY OF CONTRACTOR FURNISHED AND INSTALLED EQUIPMENT

A list of equipment or units of equipment that require electrical power or fuel, or may require removal or replacement such as AHUs, fans, air conditioners, compressors, condensers, boiler, thermal exchangers, pumps, cooling towers, tanks, fire hydrants, sinks, water closets, lavatories, urinals, shower stalls, and any other large plumbing fixtures, light fixtures, etc., shall be made and kept up to date as installed. The list shall be reviewed periodically by the Government to insure completeness and accuracy. Partial payment will be withheld for equipment not incorporated in the list. List shall include on each item as applicable: Description, Manufacturer, Model or Catalog No., Serial No., Input (power, voltage, BTU, etc.), Output (power, voltage, BTU, tons, etc.), Size or Capacity (tanks), and net inventory costs; any other data necessary to describe item and shall list all warrantors and warranty periods for each item of equipment. Final list shall be turned over to the Authorized Representative of the Contracting Officer at the time of the Contractor's quality control completion inspection.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

SECTION 02466

[AM #0001] DRILLED FOUNDATION CAISSONS (PIERS)

**12/97**

**AM #0001**

THIS SECTION HAS BEEN DELETED.

-- End of Section --

## SECTION 09510

## ACOUSTICAL CEILINGS

08/96

AM #0001

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 635	(1995) Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings
ASTM C 636	(1996) Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels
ASTM E 1264	(1990) Standard Classification for Acoustical Ceiling Products
ASTM E 1414	(1991a) Standard Test for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum

## 1.2 GENERAL REQUIREMENTS

Acoustical treatment shall consist of sound controlling units mechanically mounted on a ceiling suspension system. The unit size, texture, finish, and color shall be as specified. . The location and extent of acoustical treatment shall be as shown on the drawings.

## 1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-01 Data

Acoustical Ceiling System; FIO.

Manufacturer's descriptive data, catalog cuts, and installation instructions.

## SD-04 Drawings

Acoustical Ceiling System; FIO.

Drawings showing suspension system, method of anchoring and fastening,

details, and reflected ceiling plan.

#### SD-09 Reports

Ceiling Attenuation Class and Test; FIO.

Reports by an independent testing laboratory attesting that acoustical ceiling systems meet specified fire endurance and sound transmission requirements.

#### SD-13 Certificates

Acoustical Units; FIO.

Certificate attesting that the mineral based acoustical units furnished for the project contains recycled material and showing an estimated percent of such material.

#### SD-14 Samples

Acoustical Units; GA.

Two samples of each type of acoustical unit and each type of suspension grid tee section showing texture, finish, and color.

### 1.4 DELIVERY AND STORAGE

Materials shall be delivered to the site in the manufacturer's original unopened containers with brand name and type clearly marked. Materials shall be carefully handled and stored in dry, watertight enclosures. Immediately before installation, acoustical units shall be stored for not less than 24 hours at the same temperature and relative humidity as the space where they will be installed in order to assure proper temperature and moisture acclimation.

### 1.5 ENVIRONMENTAL REQUIREMENTS

A uniform temperature of not less than 60 degrees F nor more than 85 degrees F and a relative humidity of not more than 70 percent shall be maintained before, during, and after installation of acoustical units.

### 1.6 SCHEDULING

Interior finish work such as plastering, concrete and terrazzo work shall be complete and dry before installation. Mechanical, electrical, and other work above the ceiling line shall be completed and heating, ventilating, and air conditioning systems shall be installed and operating in order to maintain temperature and humidity requirements.

### 1.7 WARRANTY

Manufacturer's standard performance guarantees or warranties that extend beyond a one year period shall be provided.

### 1.8 EXTRA MATERIALS

Provide 2 full cartons of each type of ceiling panels to location as indicated by contracting officer. Tiles shall be from the same lot as those installed.

## PART 2 PRODUCTS

### 2.1 ACOUSTICAL UNITS

Acoustical units shall conform to ASTM E 1264, Class A, and the following requirements:

#### 2.1.1 Units for Exposed-Grid System, Type C1 Units as scheduled on Drawings.

Type: III (mineral fiber with painted finish). Type III acoustical units shall have a minimum recycled material content of 18 percent.

Minimum NRC: 0.65 when tested on mounting No. E-400

Pattern: D.

Nominal size: 24 by 48 inches.

Edge detail: Square.

Finish: Factory-applied white painted finish.

Minimum LR coefficient: .75.

Minimum CAC: 35.

### 2.2 SUSPENSION SYSTEM

Suspension system shall be standard exposed-grid standard width flange, and shall conform to ASTM C 635 for intermediate-duty systems. Surfaces exposed to view shall be aluminum or steel with a factory-applied white baked-enamel finish. Wall molding shall have a flange of not less than 15/16 inch. Mitered corners shall be provided. Suspended ceiling framing system shall have the capability to support the finished ceiling, light fixtures, air diffusers, and accessories, as shown. The suspension system shall have a maximum deflection of 1/360 of span length.

### 2.3 HANGERS

Hangers shall be galvanized steel wire. Hangers and attachment shall support a minimum 300 pound ultimate vertical load without failure of supporting material or attachment. [AM #0001] Galvanized steel wire shall conform to ASTM A 641, Class 3 zinc coating and be a minimum of No. 12 gage wire.

### 2.4 FINISHES

Acoustical units and suspension system members shall have manufacturer's standard textures, patterns and finishes as specified. Ceiling suspension system components shall be treated to inhibit corrosion.

### 2.5 COLORS AND PATTERNS

Colors and patterns for acoustical units and suspension system components shall be as specified in Section 09915 COLOR SCHEDULE.

### 2.6 CEILING ATTENUATION CLASS AND TEST

Ceiling attenuation class (CAC) range of acoustical units, when required, shall be determined in accordance with ASTM E 1414. Test ceiling shall be continuous at the partition and shall be assembled in the suspension system in the same manner that the ceiling will be installed on the project. System shall be tested with all acoustical units installed.

### PART 3 EXECUTION

#### 3.1 INSTALLATION

Acoustical work shall be provided complete with necessary fastenings, clips, and other accessories required for a complete installation. Mechanical fastenings shall not be exposed in the finished work. Hangers shall be laid out for each individual room or space. Hangers shall be placed to support framing around beams, ducts, columns, grilles, and other penetrations through ceilings. Main runners and carrying channels shall be kept clear of abutting walls and partitions. At least two main runners shall be provided for each ceiling span. Wherever required to bypass an object with the hanger wires, a subsuspension system shall be installed, so that all hanger wires will be plumb.

##### 3.1.1 Suspension System

Suspension system shall be installed in accordance with ASTM C 636 and as specified herein. There shall be no hanger wires or other loads suspended from underside of steel decking.

###### 3.1.1.1 Plumb Hangers

Hangers shall be plumb and shall not press against insulation covering ducts and pipes.

###### 3.1.1.2 Splayed Hangers

Where hangers must be splayed (sloped or slanted) around obstructions, the resulting horizontal force shall be offset by bracing, countersplaying, or other acceptable means.

##### 3.1.2 Wall Molding

Wall molding shall be provided where ceilings abut vertical surfaces. Wall molding shall be secured not more than 3 inches from ends of each length and not more than 16 inches on centers between end fastenings. Wall molding springs shall be provided at each acoustical unit in semi-exposed or concealed systems.

##### 3.1.3 Acoustical Units

Acoustical units shall be installed in accordance with the approved installation instructions of the manufacturer. Edges of acoustical units shall be in close contact with metal supports, with each other, and in true alignment. Acoustical units shall be arranged so that units less than one-half width are minimized. Units in exposed-grid system shall be held in place with manufacturer's standard hold-down clips, if units weigh less than 1 psf or if required for fire resistance rating.

#### 3.2 CLEANING

Following installation, dirty or discolored surfaces of acoustical units shall be cleaned and left free from defects. Units that are damaged or improperly installed shall be removed and new units provided as directed.

-- End of Section --